

# **ELKA** **SYNTHEX**

## HOW TO RECALIBRATE ELKA SYNTHEX' OSCILLATORS.

The board you have to look at is n° 5840, which is at the bottom of the 4-board-group on the left side.

## SOUND GENERATOR (OSCILLATOR) CALIBRATION.

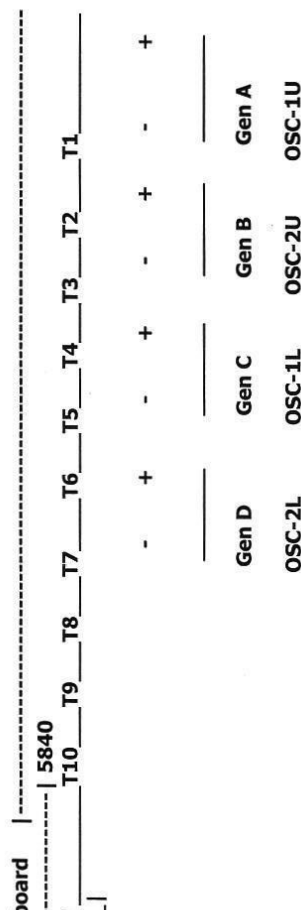
The 16 oscillators of Synthex' voices are digital, their tuning is controlled only by number codes that cannot change as time passes by, so the tuning is stable and reliable. Since the voice - oscillators must be frequency-controlled by means of the LFO and the pitch bend, 4 reference frequency generators are used to which the voice-oscillators link; they can be imagined as 4 electronic diapason that can be modulated by the LFO and by the bend. We can refer to these 4 generators as: Gen A, Gen B, Gen C, Gen D.

In SPLIT and DOUBLE mode the assignation is as follows:

Gen A: OSC-1 upper ( 4 voices )  
 Gen B: OSC-2 upper ( 4 voices )  
 Gen C: OSC-1 lower ( 4 voices )  
 Gen D: OSC-2 lower ( 4 voices )

In NORMAL mode the assignation ia as follows:

Gen A: OSC-1 upper ( 8 voices )  
 Gen B: OSC-2 upper ( 8 voices )



The generators calibration is divided into 4 steps:

- step-1: starting settings
- step-2: calibration of Gen B: OSC-2 referring to Gen A: OSC-1
- step-3: calibration of Gen C: OSC-1L referring to Gen A: OSC-1U
- step-4: calibration of Gen D: OSC-2L referring to Gen A: OSC-1U

If for some of these steps you reach the limit of one trimmer, you can solve the problem by using the corresponding Gen A trimmers 1or 2, repeating of the three steps;

if the problem is on T4, T6, T8 then you can use the trimmer T1 which is situated on the board n° 5801 which is on the small panel close to the joystick.

The trimmer T1 sets the centering of DETUNE.  
The trimmer T2 sets the centering of MASTER TUNE.  
The trimmer T3 sets the end value tune of BEND +  
The trimmer T5 sets the end value tune of BEND -

#### STEP-1 STARTING SETTINGS

joystick panel:

sliders BEND to osc = 10  
all the other sliders = 0  
upper/lower/both selector = BOTH

panel settings:

DOUBLE = OFF  
SPLIT = OFF  
PANEL = ON

#### TUNING

MASTER TUNE = 0  
DETUNE = 0  
OSC 2 SYNC = OFF

#### OSCILLATOR 1

OCTAVE = 4'  
TRANSPOSE = 0  
WAVEFORM = ramp ( sawtooth)  
VOLUME = 10

#### OSCILLATOR 2

OCTAVE = 4  
TRANSPOSE = 0  
WAVEFORM = ramp  
VOLUME = 10

#### FILTER

FREQUENCY = 10  
ENVELOPE = 0  
RESONANCE = 0  
KEYBOARD = 0  
Filter Modes = LP

#### CHORUS

OFF

#### GLIDE / PORTAMENTO

all OFF

#### LFO ROUTING

all OFF

#### NOISE GENERATOR

all OFF

#### STEP - 2: CALIBRATION OF GEN B: OSC-2 REFERRING TO GEN A: OSC-1

- 1) Enable HOLD
- 2) Press the C4 key ( you could use any other key, but it's necessary that the frequency is high in order to better hear to the beats)
- 3) Bring and hold the joystick to the maximum BEND + value
- 4) Reduce the beats as much as you can by means of trimmer T3
- 5) Bring and hold the joystick to the maximum BEND - value
- 6) Reduce the beats as much as possible by means of trimmer T4
- 7) Repeat from instruction 3) to instruction 6) till the beat is the least through all the joystick range
- 8) Disable HOLD

#### STEP - 3: CALIBRATION OF GEN C: OSC-1L REFERRING TO GEN A: OSC-1U

- 1) Set OSC 2 VOLUME = 0
- 2) Enable HOLD
- 3) Enable DOUBLE
- 4) Enable LOWER
- 5) Select PANEL (make sure that HOLD is enabled)
- 6) Press the C4 key
- 7) Bring and hold the joystick to the maximum BEND + value
- 8) Reduce the beats as much as you can by means of trimmer T5
- 9) Bring and hold the joystick to the maximum BEND - value
- 10) Reduce the beats as much as possible by means of trimmer T6
- 11) Repeat from instruction 7) to instruction 10) until the beat is the least through all the joystick range

#### STEP - 4: CALIBRATION OF GEN D: OSC-2L REFERRING TO GEN A: OSC-1U

LOWER is enabled since STEP-2

- 1) Set the OSC-1 VOLUME to 0
- 2) Set the OSC-2 VOLUME to 10
- 3) Bring and hold the joystick to the maximum BEND + value
- 4) Reduce the beats as much as you can by means of trimmer T5
- 5) Bring and hold the joystick to the maximum BEND - value
- 6) Reduce the beats as much as possible by means of trimmer T6
- 7) Repeat from instruction 3) to instruction 6) until the beat is the least through all the joystick range

(Now see the BMP file we're enclosing)